

**PIKES PEAK
RADIO AMATEUR
ASSOCIATION
(PPRAA)**

Activities/Meetings

- Ham Breakfast
Saturday, March 7th
8:00-9:30 AM

Susie's Westside Cafe,
1686 South 21st Street

All are warmly invited to
come on down and join us!

- PPRAA Board Meeting
Mon, March 9th
IHOP
- PPRAA general
membership meeting,
Wednesday, March 11th.
- 10 Meter/2 Meter net
Every Thursday 7:00 pm
28.390 MHz—USB
144.200 MHz-USB

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Volume 65 Issue 03

March 2015

SKYWARN Training—2015

The annual NWS Pueblo/SKYWARN Severe Weather Awareness and Spotter Training dates can be found at:

<http://www.crh.noaa.gov/pub/?n=/wcm/talks.php>.

Please note the 4 April date is reserved for ARES only. Check the site occasionally as dates and locations are sometimes changed or added.

PPRAA Scholarship and FAR Scholarship Committee

PPRAA scholarship is administered by Foundation for Amateur Radio (FAR). FAR is a non-profit organization created to provide support to the amateur radio community for education.

When PPRAA started to work towards creating a scholarship fund, they decided to distance themselves from the administrative tasks. FAR was their organization of choice.

The Foundation for Amateur Radio, Inc., will be administering a total of 67 scholarships worth an aggregate of \$133,500 during the 2015 academic year. The scholarships range in value from \$500 to \$5,000 each.

All applicants must meet the following FAR minimum requirements:

- * Hold a valid US or foreign amateur radio license
- * Be enrolled, or have been accepted for enrollment, at an accredited university, college, or technical school
- * Applicants who addend a school located outside the United States must inclose a brochure describing the school.

The PPRAA scholarship has additional requirements to include having to be enrolled in a hard science curriculum, such as but not limited to Physics, Engineering, Computer Science, Math. One way to think about it is if the major requires a lot of math, it is most likely appropriate for the PPRAA scholarship.

In addition, the scholarship is weighted towards a Colorado resident and/or weighted towards

someone attending a Colorado college or university.

Please note that the PPRAA scholarship will award 1 recipient \$1,000 yearly. Currently we are raising the funds annually, but if we grow the fund to over \$30,000 the scholarship will self perpetuate.

More information about FAR can be found at:
www.farweb.org

There are many ways you can help grow the PPRAA scholarship fund.

- * Matching funds from your business
- * Donate when you renew your PPRAA membership either online or using the form on the last page of the O-Beat.
- * Donate at the monthly meeting.
- * Online via PayPal
ppraa.org/donations
- * Direct or anonymous by contacting FAR at:
FAR Scholarship Committee
P.O. Box 911
Columbia, MD 21044
- * Leave a legacy, donate in your will.

If you are writing a check please make it out to:
PPRAA Scholarship

Please help with this very worthwhile PPRAA activity.

PPRAA Officers and Board of Directors

PPRAA Board of Directors consists of four elected officers, seven board members, as well the past president (time limit dependent). The Ø-Beat editor is a board appointed position and is also a member of the board.

Officers include:

- ⇒ President
- ⇒ Vice-President
- ⇒ Secretary
- ⇒ Treasurer

To send board member's email, browse to the officers section of our website: <http://ppraa.org/about-ppraa/officers>

President	Raleigh Holcomb	N4HYF
Vice-President	Jim Bishop	KDØKQL
Secretary	Diana Nordstrom	KCØNPP
Treasurer	Pam Scott	WØPRS
Past President	Michael Derbort	KCØELG
Board Member	Dan Martin	KDØSMP
Board Member	Glenn Brodt	N3ULW
Board Member	Jim Rader	KDØNQM
Board Member	Charlie Coyner	KD6CBC
Board Member	Jim Harris	WØEM
Board Member	Virgil Yost	NØXRS
Board Member	Frank Roger	KB3PDT
Ø-Beat Editor	Dan Scott	WØRO

Online Resources

PPRAA Website

<http://ppraa.org>

The PPRAA website is the cornerstone for club related information, events, and technical information.

In addition you can register, pay dues, and submit donations. Donations to the PPRAA college scholarship fund are managed by FAR Scholarship Committee

Facebook / Google+

Follow activities as they unfold, or get reminders of upcoming events.

Links to both Facebook and Google+ social media sites can be found on the PPRAA.org.

Or from each social media site search on: Pikes Peak Radio Amateur Association

PPRAA Forums

The PPRAA forums are intended to allow users to exchange of ideas, ask and answer amateur radio related questions, and plan/discuss upcoming events.

This is a fantastic, but underutilized, tool. Check it out and register at: PPRAA.Forumotion.net

Monthly Activities

Membership Meeting

Held the 2nd Wednesday of the month starting at 7:00.

IHOP
5749 Stetson Hills Blvd
(just west of Powers Blvd)

NOTE: Many show up at 6 pm for kibitzing and grub.

Board Meeting

IHOP
5749 Stetson Hills Blvd

6:30pm—8:00pm
On the Monday preceding the membership meeting.

Board Meetings are open to all members.

Ham Breakfast

Location changes monthly: Check ppraa.org or table of contents, page I for the breakfast meeting location.

10 Meter/2 Meter Net

Every Thursday at 7pm
Starts on 28.390 USB then transitions to 2 Meter SSB at 144.200 USB.

Meeting Presentation Topics

Last Meeting

Jim WØEM demonstrating the operation of our remote station.

March Meeting

Charlie Coyner on his motorcycle amateur radio installation project that was in the August, 2014 O-Beat.

April Meeting

Tentative:

Jason Laird from Channel 13 about doing a WX and ARES presentation for us.

FCC “Paperless” Amateur Radio License - Effective Feb 17

The full article can be found at:
<http://tinyurl.com/ppocdc7>

Starting February 17, the FCC no longer will routinely issue paper license documents to Amateur Radio applicants and licensees. The Commission has maintained for some time now that the official Amateur Radio license authorization is the electronic record that exists in its Universal Licensing System

(ULS), although the FCC has continued to print and mail hard copy licenses. In mid-December the FCC adopted final procedures to provide access to official electronic authorizations, as it had proposed in WT Docket 14-161 as part of its “process reform” initiatives.

Under the new procedures, licensees will access their

current official authorization (“Active” status only) via the ULS License Manager. The FCC will continue to provide paper license documents to all licensees who notify the Commission that they prefer to receive one. Licensees also will be able to print out an official authorization — as well as an unofficial “reference copy” — from the ULS License Manager.

Colorado PRB-1 Bill Likely to Pass

Anyone wanting to follow the PRB-1 bill, you should be able to use the TinyURL.com link:

<http://tinyurl.com/kdhome>

According to the State Emergency Coordinator, N0ESQ, passage appears to be extremely likely.

The federal communications commission (FCC) currently limits the authority of local

governments to regulate amateur radio communications. Any local government regulation must be based on health, safety, or aesthetic considerations, must be crafted to reasonably accommodate amateur radio communications, and must represent the minimum practicable regulation to accomplish a legitimate purpose of the local government. This federal

preemption is contained in a memorandum opinion and order from the FCC known as “PRB-1”.

The bill specifies that no local government shall enact or enforce an ordinance or resolution regulating amateur radio antennas that fails to comply with the restrictions contained in the PRB-1.



PPRAA Board Meeting Minutes—09 February 2015

PPRAA BOARD MEETING Minutes
09 February 2015

Call To Order – 6:49pm

Approval of the January Meeting

Minutes -

Committee reports

Treasurer's report - \$10,013.67 total, \$1,963.94 designated

Antenna Report - nothing to report

Building report

Electrical committee

Lease Agreement (Ed KCØTBE) - Hold up on the lawyer side, no other hang ups.

Megafest 2015 - Tickets are in, prizes are in, we have our license. We did well at Adams County.

Field Day committee - Les has offered space, some of the local clubs may be doing Field Day at St. Francis Medical Center. Jim B. moves to hold Field Day at the Volunteer Fire Department in Ellicott. Dan M. seconds the motion, the club approves.

Asset Committee - nothing to report

Zero Beat - still needs articles. January's was behind.

Tech Ed (Mike, WV7T) - personal tutoring only

Remote Station Report - Has been on air 2 months. Must make a request to have access to the station. Usage is consistent at about 1 hour a day. Currently planning on pulling the plug at this current location on 3/1/15. Need to consider usage fees and/or usage amounts. Tabled until March.

PA System - Had a complaint about the system, requested updates to the microphones and the speakers. The board has no issues with the system currently

PPRAA Activities - Revive the activities committee, offer the chair to the club on Wednesday

10m Net

By-Law Review

Webmaster on board

Club Meeting Programs

Feb 11th – Jim Harris

Business Conducted Via Email

Around the table

Jim B - ARES needs 6 more people for May 2

Michael D - Looking to do a special event for a radio club event on Feb 14

Frank - General Class plans have stalled, must get these done before July.

Mike A. Special Events station for February - 15th Maine, 23rd Flag Raising in Iwojima.

Next Board Meeting: March 9th, Location: IHOP

Adjourn - Jim R. moves to adjourn, Jim B seconds, 8:29pm

PPRAA General Meeting Minutes—12 January 2015

PPRAA GENERAL MEETING MINUTES

11 February 2015

Call To Order - 6:59pm

Introductions

Silent Key - Wife of Dr. David Hunter, W5DUU, Johanne passed at the end of January

Approval of the January Meeting Minutes - pending publishing of the Zero Beat

Committee reports

- Treasurer's report - \$10,013.67
- Antenna Report - No changes pending lease agreement
- Building report - No changes pending lease agreement
- Electrical committee - no report
- Lease Agreement (Ed KCØTBE) - awaiting lawyer approval
- Megafest 2015 - Flyers are available to be passed out, sold almost 500 raffle tickets at Aurora hamfest, raffle tickets are available for sale at club meetings
- Field Day committee - Field Day will be held at the Ellicott Fire Station, looking for a CW station and operator. If you are willing to volunteer, please contact the board.
- Asset Committee - Still looking for a missing tube radio. Please contact the board if you are aware of it's location!
- Zero Beat - Sorry about the delay for Feb's issue
- Tech Ed - Frank is looking to host a General Class, possibly on Thursday nights, if interested in teaching or being a student, please contact Frank or Dan S., held in Falcon at the LDS church. Mike A is still doing small classes, contact him for more information
- ARES - ARES only Skywarn training on April 4th at Falcon Division Police, Goddard St., Need Volunteers - Falcon 50 on 2 May at AFA, sign up on the Pikes Peak ARES website or contact John Bloodgood.
- IRLP - A class is being held on Feb 20 in Manitou at the makerspace. Looking for a teacher. Contact Jim B for more information.
- Activities Committee - Looking for a chair, to plan the BBQ and other family activities to plan once a quarter. Please contact the board if you wish to volunteer.

10m Net - Last Thurs, #321, had 18 check-ins. Net happens every Thurs at 7pm starting on 28.390MHz SSB

By-Law Review

- Webmaster on board - Jim B moves to approve the change, Jim H. seconds, 1 opposing, club passes.

Next General Meeting: March 11th, Location: IHOP

Make your own dipoles with these center insulators

By Dan Romanchik, KB6NU

One of the things that always gets my goat is the price some companies charge for dipole antennas. It's not that they're charging an outrageously large sum of money, and I certainly don't begrudge them making a profit for their efforts. It's just that if hams would just buy their own wire and parts, they would not only save money over the long run, but be encouraged to experiment with antennas. That's what I started doing about ten years ago, and I've been very happy with the results.



One of the first things that I did was to purchase ten Budwig HQ-1 center insulators and ten HQ-2 end insulators (<http://www.budwig.com/antenna-connector-insulators.html>). I've made a bunch of antennas with these insulators, including several 40m/20m inverted vees for portable use (such as Field Day and special events), a 17m dipole, and a 10m loop antenna. These insulators are very well-made, and can easily be reused, too.

Universal Radio sells the set (<http://universal-radio.com/catalog/antsup/1782.html>) for \$18.50. I just placed another order for ten HQ-1s and 20 HQ-2s (the minimum number that you can purchase to get a quantity discount). The price, including shipping, is \$143.

There are a bunch of other center insulators on the market, including:

- * The Alpha Delta Delta-C antenna hardware kit (<http://universal-radio.com/catalogantsup/0297.html>) consists of a Delta-C Center Insulator, antenna connecting hardware, 1 SEP Arc-Plug™ static protector (installed in Delta-C) and 2 Delta-CIN end insulators. This is a little heavier-duty than the Budwig insulators, but it costs more, too (\$30 at Universal Radio). Unless you're going to be running a kW, I don't see the need to spend nearly twice as much money on these insulators.

- * The TEN-TEC ACRO-BAT Antenna Connector & Hanger (<http://www.tentec.com/products/>

[ACRO%252dBAT-Antenna-Connector-%26-Hanger.html](http://www.tentec.com/products/)) is an interesting product. Unlike the Budwig and Alpha-Delta insulators, this product does not have an SO-239. Instead, this insulator clamps over the coax and antenna wire, and in doing so, provides strain relief. I haven't tried this one, but it seems like a nice design. The cost is \$10, directly from TEN-TEC or from Universal Radio.

- * The Unadilla W2AU ANsulator (<http://universal-radio.com/catalog/antsup/0913.html>) is made from PCV tubing and include eyelets for terminating the antenna wire and for supporting the insulator in the middle. For \$15, I think I'd rather have the Budwig insulator. Also, you should be able to make one of these insulators for less than 15 bucks.

- * The Hy-Gain C-1C Center Insulator (<http://www.hy-gain.com/Product.php?productid=C-1C>) has a screw for tightening down the antenna wire, so you don't have to do any soldering, but overall, I don't think I like the looks of this model. And, at 30 bucks, it seems kind of pricey.

- * The W8AMZ Dipole Antenna Starter Kit (http://www.w8amz.com/W8AMZ_ACC_Page.html) comes a center insulator made from PVC pipe, similar to the Unadilla W2AU ANsulator and two end insulators. It costs \$18.

If none of these strikes your fancy, you can always make your own. WP4AOH has some very good instructions on how to do this using PVC pipe and fasteners that you can find at your local hardware store (<http://wp4aoh.blogspot.com/2012/07/dipole-antenna-center-insulator.html>).

Whatever route you take, I encourage you to keep several on hand and enough antenna wire and coax to complete the antenna. You never know when the urge will strike you to build an antenna, and if you don't have the parts you've missed an opportunity to do some experimenting.

When not checking his stock of antenna parts, you'll find KB6NU working on updates to his "No Nonsense" study guides, blogging about amateur radio at www.kb6nu.com, or working 30m CW.

600-meter amateur radio band

By Dan—WØRO

Has anyone in the club played on the 600 meter MF band?

I know it has been there basically from the chatter on the Flex Radio reflector a couple years back. At the same time someone in PPRAA was running a 600M beacon.

The 600 meter (or 630 meter) amateur radio band from 472 to 479 kHz was allocated for

amateur radio operations on a secondary basis in 2012. The band is available in all ITU regions. The maximum radiated power is 1 watt effective isotropic radiated power (EIRP). Although 5-watts may be possible is allowable based on distances from certain countries.

There are currently 27 countries prohibiting Amateur Radio use of the 600 Meter band.

For those interested,

there are a number of schematics available. An example would be the schematic by G3SBM which can be found at:

<http://g3xbm-grp.blogspot.co.uk/2012/07/472500khz-transceiver-transverter.html>

The allocation did not take effect formally until January 1, 2013.

Several countries had previously allocated the WRC-12 band to amateurs domestically.

Social organizer WANTED

At the last Colorado Councils of Amateur Radio Club (CCARC) meeting the ARRL Rocky Mountain Division director, Brian Milesosky N5ZGT, reported that one of the methods of getting a club to grow is organizing family activities.

With this recommendation in mind I asked the board if they thought trying quarterly family activities is something PPRAA should start doing. Obviously, since I am writing about it, the board agreed to "give it a go".

At the same time, the board is trying to get non-board

members involved in planning committees.

Are you, your spouse, or a family member a whiz at planning social gatherings? Well, it's least good at finding fun, family oriented things to do in Colorado?

Ideally we will receive a few volunteers allowing the formation of a committee.

If you are wondering what kind of activities, I think the sky is the limit, such as a Cog Railway ride up the Peak; pizza night; Sky Sox; beginning archery for all ages, a show at Pikes Peak

Center, Cheyenne Mountain Zoo, or maybe a dinner cruise on Monument Creek

Volunteers are essential to make this work. To volunteer please contact a board member or write to the board email list: boardmembers@ppraa.org.

Thanks for your help!

73,
Dan
Ø-Beat Editor

Pikes Peak Radio Amateur Association, Inc.



PPRAA HAM RADIO MEGAFEST

Saturday, July 11th, 2015

8 AM to 1 PM Lewis-Palmer High School

1300 Higby Rd., Monument, CO 80132; East of I-25, Exit 158 or 161

Vendor Setup at 6 AM — Raffle Ticket Sales Open at 7:30 AM

Talk In: 146.970 MHz (-) 100 Hz Tone

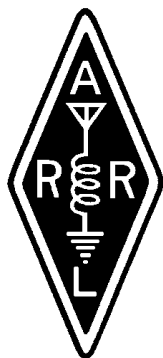
Great Raffle Prizes!

One Raffle Ticket Included with Admission

Additional Tickets: \$1 Each, 6 for \$5, 15 for \$10, 40 for \$20

Drawing at Noon, July 11th, 2015.

Raffle prize winners need not be present to win.



6-foot Table Rental

Early Bird (before 20 April): \$12

In Advance (20 April – 5 July): \$15

Last Minute - after 5 July: \$17

Rental Does NOT Include Admission - \$5.00 per person

One chair provided with each table

Table rental form is available online

ppraa.org/megafest



Should I Buy That Radio From China? - Bob KØNR

One question I often hear from new radio amateurs is whether or not they should buy one of those cheap low-cost handheld transceivers (HT) made in China. Most of the time they are referring to one of the Baofeng radios or perhaps a Wouxun model. The Baofeng radios (also marketed as Pofung) seem to be the price leader, with the UV-5R model available at Amazon for ~\$30. There are quite a few variations on this basic model, and more being introduced as I write.

I'll center my comments on the Baofeng UV-5R but most of this applies to other models as well. Frankly, I hesitate to recommend these radios without a short briefing and disclaimer because I've seen some folks buy the radio, get very frustrated with it, and then replace it with a Yaesu FT-60 or a similar HT from other Japanese manufacturers Icom, Kenwood, or Alinco. I admit that I am a fan of the FT-60 and still consider it the safe buy for new hams (although certainly more expensive).

On the other hand, I do own several versions of the Baofeng radio...and I use them a lot! The main reason is that once programmed, they do the job just fine and if I lose it, crush it, or drop it, the financial loss is minimal. Also, these radios become the spare HTs that I toss behind the seat of the truck or in my backpack or go-bag. So I totally get it that these are amazing little radios for less than \$40. If you do decide to go with the Baofeng, here are a few things to be aware of that will help you get started.

Get a better manual – The user manuals are not easy to understand. However, various hams have created a more usable manual. See miklor.com for user manuals and tons of other information.

Get the programming software – Using the programming software is the way to go with these radios. The software available from Baofeng is generally just barely acceptable. A much better choice is to use the open source Chirp software, which can program a wide variety of radios (including the Baofeng.)

Watch out for programming cable problems – There have been quite a few problems with Windows drivers working with various chips in the cables. The Miklor web site explains this well. Also,

see how I handled the situation via my blog post. Borrow a programming file from a local ham – It is really good if you can find someone in your area that has already programmed up the radio for use with local 2m and 70 cm repeaters and simplex frequencies. Get a copy of their file and load it into your radio. You can always modify it later but it can

really help get you started.

Don't let the dual display confuse you – The radio normally shows you two frequencies: one for "band A" and one for "band B". You might think that the radio is listening to both frequencies simultaneously. In reality, there is only one receiver in the radio and it has to rapidly switch back and forth between the two frequencies to monitor both. (The feature is controlled by the TDR menu selection.)

Don't transmit outside the amateur band – Some of these Chinese radios can transmit and receive on a wide range of frequencies, including outside of the ham bands. Be extremely careful that you program the radio to transmit only in the ham band. Another

reason to get a programming file from a local ham. Leave off unnecessary features – These radios include a bunch of features that are normally not needed for ham radio operation. Features like PTT-ID (sends a DTMF sequence every time you key up) and ROGER ("roger" beep on transmit) should just be left "off". Another reason to get a programming file from a local ham.

Which Model? A number of hams have posted reviews of the various models and they try to keep up with the latest ones. Take a look at these web sites:

- ⇒ [PD0AC Ham Radio Blog](http://PD0AC.com)
- ⇒ [Brick O'Lore Blog](http://BrickO'Lore.com)
- ⇒ BaofengTech.com
- ⇒ [WalkieTalkieWorld](http://WalkieTalkieWorld.com)

So go ahead and buy that radio from China, but be ready for some fiddling around as you get started. I hope this helps you have a good experience with your new radio.

73, Bob KØNR

[The KØNR Radio Site](http://TheKØNRRadioSite.com)

Bob's is an Electrical Engineer receiving a BSEE from Purdue University and an MSEE from Colorado State University. While attending Purdue University, he got interested in amateur radio and licensed in 1977.

This article was found on HamRadioSchool.com. The HamRadioSchool.com integrated learning system combines the best of proven traditional method with new media to provide a learning experience like no other in amateur radio today!





VE Testing & Education—Colorado Springs (PPRAA)

Pikes Peak Radio Amateur Association (PPRAA)

When:
Feb, Apr, Jun, Aug, Oct, Dec
2nd Saturday at 9 AM

Location:
Colorado Technical University (CTU)
4435 North Chestnut
Colorado Springs, CO 80907

Directions available at:
ppraa.org/ve-testing
or contact:
Dan Martin
VE@PPRAA.org



Mike Anderson, WV7T does personal and small group training for all license classes.

Mike also does Morse code training.

Mike can be reached at:
719-229-8610
vv7t@aol.com

VE Testing Woodland Park (MARC)

MOUNTAIN AMATEUR RADIO CLUB (MARC)

When:
Jan, Mar, May, Jul, Sep, Nov
1st Saturday at 10 AM

Location:
Woodland Park
Woodland Park Library-
Community Meeting RM
218 East Midland Avenue

Directions:
<http://www.nx0g.org/ve.html>
or contact
Wes Wilson (KØHBZ)
k0hbz@arrl.net
Call (719) 687-8758



Applicants will need the following items:

1. A valid PHOTO ID, driver's license preferred (if you do not have a valid photo ID, please call for alternative identification requirements).
2. Your FRN or SOCIAL SECURITY NUMBER (now required – this includes children).
3. Your CURRENT ORIGINAL amateur radio license (if any) and a PHOTOCOPY for the VE Team to keep.
4. The CURRENT ORIGINAL CSEs you have and a PHOTOCOPY for the VE Team to keep.
5. Cash, Check or Money Order for \$15 (standard ARRL VE Fee). Checks and money orders should be made out to ARRL. This covers all exams you wish to take at this VE session.

NOTE: PPRAA and MARC VE Team policy, as with many VE Teams, is to not allow same day retests on failed exams.

PPRAA – Colorado Springs testing only:

Anyone passing their Technician Class examination at a PPRAA test session will receive a free year's membership to the Pikes Peak Radio Amateur Association

How High Should an Antenna be (2)? —March 2015

Last month mentioned HF reflection, ground absorption and a possible way of determining absorption.

The ground and height are not the only factors that affect HF radiation. Also the style of antenna.

A dipole design is known to have a gain of radiation broadside to the antenna and a loss toward the ends compared to the broadside. The predicted values may turn out to be quite different. If the dipole does not have sufficient height, then the predicted values can change. The antenna may become more omni-directional. In other words the expected pattern will radiate more uniformly as you check pattern around the antenna. This is noticeable with a yagi beam. It is built on a dipole design, however if not given sufficient height, will lose some of its gain and directivity.

The inverted V tends to be prone towards more of an omni-directional pattern. If set up properly, it will work well and evenly in all directions.

For both these antennas, the higher the better. This style is quite forgiving. At heights of 60 feet plus, it can be used for very short skip and moderately long skip, depending on time of day and season.

On reception, noise factors may reduce with more height above ground.

None of this is an exact science. HF radiation is a very sloppy radiation. It tends to do what it wants to do. It will go through objects that you think it would not. Like metal, concrete, wire mesh and so on.

At other times plywood will absorb the radiation. The above mentioned objects can do the same. You do not really know until the antenna is setup and tried.

One thing you can count on, HF rarely reflects. It will bend and it can induce in various objects. When it skips in the upper atmosphere, it is a refraction or a bending of a normally straight wave pattern. Reaching the ground it can skip again, but again, it is a refraction or bending of the wave.

Getting a good take off angle and efficient antenna system can be a challenge if you are cramping the antenna.

This is one advantage to the Isotron. I have to get a sales pitch in somewhere. It will allow you to have an efficient radiator, but giving you more distance from absorbing objects. It is easier to give it height when lateral space is limited.

Hopefully this information will give you an idea of why your station is working the way it is. Whether it is working great or not so good, hopefully it will help you to make changes that will enhance your performance.

73,

Ralph WD0EJA

March. 2015

BILAL COMPANY

137 MANCHESTER DR.
FLORISSANT, CO. 80816

PH/FX: 719/687-0650

wd0eja@isotronantennas.com



**PIKES PEAK RADIO
AMATEUR
ASSOCIATION**

Send membership application to:

Pikes Peak Radio Amateur
Association, Inc.
P.O. Box 16521
Colorado Springs, CO 80935

General Questions:
ppraa@ppraa.org

ØBeat:
zerobeat@ppraa.org



ppraa.org

Get Radio Active, get on the air!

Membership Application:

Date: ____ / ____ / ____ **New Membership: Yes / No**

Name: _____

Address: _____

City/State/Zip: _____

Call: _____ **Class:** ____ **Phone # (____)** _____

Email: _____

Are you a ARRL member: Yes / No

Additional Family Members:

Name1: _____ **Call:** _____ **Class:** ____ **ARRL Member: Yes / No**

Name2: _____ **Call:** _____ **Class:** ____ **ARRL Member: Yes / No**

Name3: _____ **Call:** _____ **Class:** ____ **ARRL Member: Yes / No**

____ \$15.00 Full Member

____ \$10.00 Full Member over 65

____ \$18.00 Family Membership

____ \$12.00 Family Membership over 65

\$____ **Membership Amount**

\$____ **Scholarship Fund Donation**

\$____ **PPRAA General Fund Donation**

\$____ **Total**

2015 Scholarship Fund

There are multiple ways to donate to the PPRAA Scholarship Fund.

1. Use the form found on this page and send it, along with a check to PPRAA.
2. On the PPRAA web site you can donate via PayPal
3. At club meetings
4. Directly to the our scholarship fund.

Make checks to:
PPRAA Scholarship

The scholarship fund can be reached at:

FAR Scholarship Committee
P.O. Box 911
Columbia, MD 21044

Ø- Beat Banner

Photo by Pam—WØPRS.

The theme of the banner is Pikes Peak. If you would like to submit pictures for the Ø-Beat banner, please send them to:
zerobeat@ppraa.org

Please Include "[Ø-beat]" as part of the subject line.